

REMARKS

Claims 1-14 are presented for consideration, with claims 1 and 12 being independent.

The independent claims have been amended to further distinguish Applicant's invention from the cited art. An editorial change has been made to claim 13.

The amendments to the claims were not presented earlier as it was believed that the previously presented claims would be found allowable. This Amendment does not add any additional claims. Moreover, the Examiner's familiarity with the subject of the present application will allow an appreciation of the significance of the amendments herein without undue expenditure of time and effort. Finally, the Amendment does not raise new issues requiring further consideration or search. Accordingly, it is submitted that entry of the Amendment is appropriate.

Claims 1, 2 and 12-14 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over Watanabe (JP '528) in view of Kuriyama '224. In addition, claims 3-6 stand rejected as allegedly being obvious over those citations and further in view of Hayashi et al. '862, and claims 7-11 stand rejected as allegedly being obvious over Kuriyama, Watanabe, Hayashi et al., and further in view of Yoshii et al. '820. These rejections are respectfully traversed.

Applicant's invention as set forth in claim 1 relates to a display device comprised of a light source for emitting a light, a light modulation element for modulating the emitting light, and picture signal inputting means for receiving a picture signal from the outside and inputting a drive signal for driving the light modulation element to the light modulation element, in which the light modulation element modulates the light based on the picture signal and an image is displayed. The picture signal inputting means comprises target light amount calculating means and light amount controlling means, with the target light amount calculating means calculating

an adequate light amount for an image display and the light amount controlling means receiving the signal from the target light amount calculating means and controlling the light so as to obtain a target light amount. The picture signal inputting means changes signal amplification rates in at least two input ranges for changing input/output conversion characteristics according to an output of the target light amount calculating means, and in the two input ranges of the input conversion characteristics, the picture signal inputting means largely amplifies the driving signal when the picture signal has a low luminance and slightly amplifies the driving signal when the picture signal has a high luminance. As amended, claim 1 sets forth that the amplification rate of input at the low luminance is larger than an amplification rate of input at the high luminance.

In claim 12, a display device includes a light source, a light modulation element and picture signal inputting means as set forth in claim 1. The picture signal inputting means comprises target light amount calculating means and light amount controlling means, with the target light amount calculating means calculating an adequate light amount for an image display and the light amount controlling means receiving the signal from the target light amount calculating means and controlling a light which is transmitted or reflected by the light modulation element so as to obtain a target light amount. The picture signal inputting changes a signal amplification rate for changing input/output conversion characteristics corresponding to an output of the target light amount calculating means, and a signal amplification rate is set to two or more values corresponding to an input level, whereby an amplification rate of input at the low luminance is larger than an amplification rate of input at the high luminance.

In accordance with Applicant's claimed invention, amplification rates for changing input/output conversion characteristics are changed according to the output of the target light

amount calculating means. In this manner, a high quality display image is provided by the display device.

As discussed in the previous citation of February 9, 2004, Watanabe relates to a display device having a light source, a light modulation element and picture signal inputting means. The Office Action asserts that Watanabe also includes picture signal inputting means that include a target light amount calculating means and light amount controlling means.

Kuriyama relates to a display device having an interface and was relied upon primarily for its use of an amplifier to control the luminance of a driving signal.

In contrast to Applicant's claimed invention, however, in Watanabe, a power source for a light source is directly controlled to correct picture signals based on the level of a picture signal input. In this way, when a lamp is bright, a liquid crystal panel will be corrected to be dark, and when a lamp is dark, a correction is made so the liquid crystal panel is bright. In Watanabe's display device, however, when there is a bright region and a dark region shown together on the display, the light source cannot be adjusted to provide a high quality image.

In Applicant's claimed invention, on the other hand, the target light amount calculating means calculates an adequate light amount for an image display and this is used to change the amplification rate for changing input/output conversion characteristics. To further emphasize this feature, the claims have been amended to set forth that the amplification rate of input at low luminance is larger than an amplification rate of input at high luminance. This feature, among others, is not provided for in Watanabe.

The deficiencies in Watanabe with respect to Applicant's independent claims are not compensated for by Kuriyama. As discussed above, Kuriyama is relied upon for teaching controlling the luminance of a driving signal.

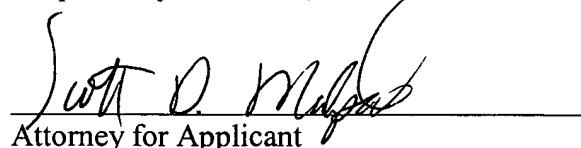
Therefore, the proposed combination of Watanabe and Kuriyama, even if proper, still fails to teach or suggest Applicant's claimed invention. Accordingly, reconsideration and withdrawal of the rejection of claims 1, 2 and 12-14 under 35 U.S.C. § 103 is respectfully requested.

Hayashi et al. relates to a display device and was cited for its teaching of a rotatable light amount adjusting member. In Yoshii et al., a surface position detecting system is provided that includes an ultrasonic motor. These tertiary citations fail, however, to compensate for the deficiencies in Watanabe and Kuriyama as discussed above with respect to Applicant's independent claims. Therefore, reconsideration and withdrawal of the rejections of claims 3-11 under 35 U.S.C. § 103 are also submitted to be in order and such action is respectfully requested.

Accordingly, it is submitted that Applicant's invention as set forth in independent claims 1 and 12 is patentable over the cited art. In addition, dependent claims 2-11, 13 and 14 set forth additional features of Applicant's invention. Independent consideration of the dependent claims is respectfully requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Attorney for Applicant
Scott D. Malpede
Registration No. 32,533

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200